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ABSTRACT

This publication contains materials from a forum on the changing nature of work (CNW) that brought together researchers and research users to hear how to use findings to improve vocational education and training (VET) in Australia. An overview of the program and biographical information on presenters and panel members follow. The next section reports these research findings on CNW: technology drives globalization which drives the CNW; having higher skill levels is becoming more important; meeting training needs of existing, older, outsourced, and casual workers is important; and the VET sector needs to do much more for casual and outsourced workers. Overviews of the research presented at this forum cover these four themes: (1) "The 'Big Picture': Globalization, International Trends, and the Nature of Work" (Simon Marginson); (2) "Changes in the Australian Labor Market: Impact on Training Arrangements" (Richard Hall), including "Making the Grade? Globalization and the Training Market in Australia" and "'It's Not My Problem': Growth of Non-Standard Work and Its Impact on VET in Australia"; (3) "Changes at the Workplace: New Management Practices and Enterprise Training" (Andy Smith); and (4) "Provider Perspective" (Peter Waterhouse). Each presentation consists of some or all of the following: background to research; key findings; implications for policy, providers, and teachers and trainers; key issues; and directions for further research. Annotations of 24 other reports on CNW follow. (YLB)

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NCVER Research Forum
(Melbourne, Australia, November 30, 2000)

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Copies of a range of publications about the changing nature of work and related topics are on display at the forum.

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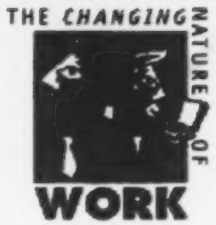


THE PURPOSE OF THIS FORUM

Most people have little or no time to digest lengthy and complex reports. However, forums such as this represent a way of bringing researchers and the users of research together to hear what research is saying, its implications and how the findings can be used to improve vocational education and training in Australia.

One of the real difficulties is getting the message of research out to potential users — particularly those providing training.

This series of forums therefore aims to:

- Bring researchers together with those who could and/or do use the outcomes of research in order to hear about it first hand.
- Provide an opportunity for people to meet, network and exchange information and ideas and consider solutions to the issues at hand.
- Identify and address key issues arising from the research.

"At our research forums we try to maximise the opportunity for people to meet, interact, discuss, provide feedback and propose future directions"

THE CHANGING NATURE OF WORK

AN OVERVIEW OF THE PROGRAM

The program for the day involves:

- A short video presentation showing the 'real life side' of the changing nature of work.
- A welcome, an outline of the forum's aims and setting the scene for the day.
- Presentations by four guest speakers who will give a short, sharp overview of their topic.
- Small group discussions (on tables of between eight and twelve) to consider the issues and questions raised by each of the presenters.
- Collation of the key issues identified by each of the small groups for consolidation by the forum's facilitator. These will form the basis of the issues discussed in a final panel discussion lasting about an hour. This will involve input from the panel and participants.
- A summary of the day's deliberations and outcomes.

"We want to ensure that the forum is as interactive as possible"

We would appreciate some feedback from you about the day to assist us with future forums.

THE PRESENTERS AND PANEL MEMBERS

Introduction

Dr Andy Smith, General Manager, Research & Evaluation, NCVER Ltd

Facilitator

Stewart Mitchell, Mitchell Consultancy Services

Presenters

Dr Richard Hall: Richard is a Senior Researcher at the Australian Centre for Industrial Relations Research and Training (ACIRRT) at the University of Sydney. He has researched and published widely in the areas of industrial relations, work organisation, employment and economic policy. His previous publications and research reports have focused on the impact of globalisation on organised labour, patterns of employment and labour markets, the increasing prevalence of various forms of contingent and non-standard work, the incidence and implications of telework and home-based work, and the effects of outsourcing, contracting-out and labour hire on human resource management practices.

Professor Simon Marginson: Simon is the Personal Chair in Education at Monash University. He is the Director of the Monash Centre for Research in International Education, as well as Associate Dean (Research) in the Education Faculty. He is an active researcher and public commentator across all issues in education and training. At present he is conducting two Australian Research Council projects in international education, and he has published four widely cited books on Australian education including 'Education and Public Policy in Australia' (1993) and 'Markets in Education' (1997). His research in VET

has focused on competency-based training, cross-sectoral relationships, and the changing character of work and its implications for VET focusing on technological change and work organisation. Simon is a member of the Victorian Government's Review of Public Education and its Committee on Higher Education Accreditation.

Dr Andrew Smith: Andy is General Manager of the Research and Evaluation Division at the NCVER. In this position he manages the research activities of NCVER and the administration of the national managed VET research and evaluation program.

Andy has particular research expertise in the operation of training within enterprises and in the development and implementation of national training policy. He has managed a number of national projects in his career including Industry Training Studies for OTFE and ANTA (1994-96) and a recent national survey of the impact of new management practices on enterprise training.

Formerly he was Associate Professor in Human Resource Management and Head of the School of Management at Charles Sturt University. He was foundation Director of the Group for Research in Employment and Training (GREAT) at that university. Dr Smith is author of the well-known training and development text, *Training and Development in Australia*. Prior to his research career, he worked in a variety of training management positions in the UK aerospace and automotive industries.

Dr Peter Waterhouse: Peter is the Director of Training and Development of Workplace Learning Initiatives, a Melbourne-based Registered Training Organisation. The company specialises in connecting workplace learning to processes of change as well as related VET research and professional development initiatives. With Bruce Wilson and Peter Ewer he conducted, for NCVER, a *Review of Research* on *The changing nature and patterns of work and implications for VET*. His other research has investigated workplace learning and change, worksites as learning environments, vocational training, literacy and language, adult literacy learning, experiential learning, and professional development in the context of lifelong learning.

THE CHANGING NATURE OF WORK

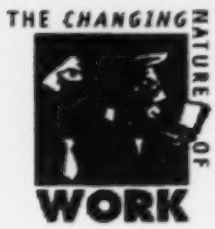
Panel members

David Flint: Following a post grad session at Cranfield Institute of Technology, David began his automotive career with Aston Martin in 1975 as Production Control Manager, becoming Manufacturing Director in 1976.

He formed the Aston Martin Tickford company in 1981 and ran the manufacturing operations in Milton Keynes, Nuneaton and Coventry. He was a member of the management buy-out who purchased Tickford Limited from its' parent CH Industrials in 1991. Shortly after, he left for Australia to set up the joint venture. The following year he set up Tickford Asia Pacific (TAP), a wholly owned subsidiary of Tickford Limited, which serves as the supplier of engineering resource to TVE.

Win Scott: Win is the Director of Education Services at William Angliss Institute of TAFE. Prior to joining William Angliss eleven years ago, Win was a restaurateur in Bendigo. Her experience in the largely casualised Hospitality Industry has given her a particular interest in the changing nature of work.

Win returned to study after leaving the hospitality industry and began her career at William Angliss as a sessional teacher. She has since taught full-time, been the Equal Opportunity Officer for students, served on the Institute Council as the staff representative, written resources, coodinated programs and was the Manager: Hospitality Programs before being appointed to her present position.



WHAT THE RESEARCH HAS SAID ABOUT CNW

How is work changing?

Work is changing and with it, the nature of the VET system. In the labour market people have less security in their employment and are working longer hours than ever before. In the workplace, new forms of technology and work organisation are having a profound effect on the way that people do their jobs and the range of responsibilities that they have to carry. A major source of change at work has come from globalisation – the creation of a global market for many goods and services and the internationalisation of firms (see Hobart 1999). Another change is the increasing outsourcing of work or the use by companies of casual workers.

Some key studies

A range of Australian work, much of which has been funded by the National Research and Evaluation Committee, has examined a range of these issues, including globalisation (Allen Consulting Group 1999, Marginson 2000, DETYA 2000), the training needs of existing and older workers (Smith [ed.] 1999) and the impact of outsourcing and casualisation of the ways training is delivered (VandenHeuval & Wooden 1999, Hall & Bretherton, forthcoming).

A brief review of the research

Waterhouse, Wilson and Ewer (1999) reviewed the research on the changing nature of work and its implications for VET.

They commented that:

- The workforce has become more 'feminised' through shifting patterns of participation for men and women.
- Unemployment has re-emerged as a significant factor.
- Full-time permanent work is increasingly a thing of the past and such positions now tend to be held by a privileged minority.
- There are increasing numbers of workers employed under part-time and casual arrangements.

- The employment mix has shifted across industries.
- The workforce is working longer hours with increasing pressure for higher levels of productivity which, in manufacturing, is coupled with demands for higher quality and fewer defects.

They therefore suggested:

- That there is a need for diversity and creativity in responses at all levels of the VET system, from policy making to program provision.
- They also noted that if VET programs are to be judged successful they need to address the needs of multiple clients simultaneously, and be tolerant of diversity while balancing the tensions between national and/or State policy frameworks and more localised needs. Regional frameworks to connect VET with local and community development networks are particularly important.

Globalisation is changing the nature of work

Simon Marginson has looked at what globalisation means in practice. He argues that globalisation is drive by the impact of new communications technologies which allow enterprises to compete in higher value added, niche markets (Marginson 2000). This means that new skills requirements are emerging which emphasise IT literacy and other generic skills. It has been argued by Reich and others that globalisation is leading to shifts in the skills profiles of occupations in developed countries away from the production worker and towards the more highly skilled 'symbolic analyst'. In Australia, Maglen and Shah (1998) have traced the rise of the symbolic analyst in the labour market and argued that the skills requirements for jobs in the Australian labour market are increasing. Hall et al. (2000) describe how the training market operates in Australia, focusing on two industries (Metals and Engineering and IT) in different regions. The report also describes how the training market meets the needs of employers grappling with the changes globalisation has brought.

Having higher skill levels is becoming more important

Work undertaken in 1999 for the Australian Industry Group (AIG) (Allen Consulting Group 1999) showed that in the manufacturing sector, Australian enterprises were increasingly looking for a range of generic or 'core' skills that would underpin their future business plans. The enterprises in the AIG survey also report that their skills requirements were moving towards a higher overall level. Their recruitment intentions showed a preference for recruitment at the professional/para-professional and trades levels above the production level of employee. In fact, 30 per cent of respondents replied that they anticipated recruiting at the professional/para-professional level compared with 25 per cent who intended to recruit at the

production level. This was reflected in the expectations of employees' skills levels and training intentions amongst enterprises in the survey over the next five years. The AIG argue that, in the manufacturing sector, Australian enterprises are displaying a marked preference for higher levels of skills in both recruitment and in their training, reflecting an underlying upward movement in the skill levels associated with the future business plans of the enterprises.

However, the source of these higher level skills in the future is in some doubt. The AiG study shows that recruitment of apprentices and trainees, the traditional means by which Australian enterprises have sought to meet their future skill requirements, is not likely to grow. This view has been supported by work carried out for the national review of skills shortages in the trades occupations co-ordinated by the federal Department of Education, Training and Youth Affairs (DETYA 2000). This work has shown that across the traditional trades areas of electro-technology, mechanical and fabrication engineering and automotive repair the numbers of apprentices and trainees recruited by Australian enterprises has been declining since the early 1990s. In most of these trades areas, the decline has been arrested in the last two years with some trades, notably electro-technology, showing strong growth in the numbers of apprentices recruited.

However, Australian enterprises employing these trades report significant skills shortages which are unlikely to be alleviated in the short-medium term through apprentice recruitment, with its long lead times to completion, or through the migration program, a traditional source of skills for Australian industry. The reports from the three working parties established to examine occupational areas in each of the trades all emphasise the importance of re-skilling existing workers to meet the growing skills deficit. This has significant implications for the growth of employer sponsored industry training.

Meeting the training needs of existing and older workers will be increasingly important for providers

The importance of the re-training of existing workers has also been highlighted by work carried out by the National Centre for Vocational Education Research (NCVER) on the training needs of older workers (Smith 1999). The NCVER work showed that the Australian population is rapidly ageing in line with international demographic trends. The median age of the Australian population currently at 34 years will increase to about 45 years by 2051. By this time over 25 per cent of the population will be aged over 65 years compared to 10 per cent in 1997. A key contributor to the greying of the population is the increasing health of older people. Advances in medical technology have led to a steady increase in the life expectancy for people, particularly in the developed world. For non-indigenous Australians, life expectancy

at birth in 1996 was 81 years for females and 75 years for males. These rates are confidently expected to grow in coming years.

At the same time, the ageing of the population is being accompanied by a significant demographic 'bust', with the lower birth rates of recent years contributing to a steep decline in the proportion of young people in the population aged 19–24 years. The combination of more people living longer and a lower proportion of young people in the population will have a significant impact on the age structure of the Australian workforce. As employers compete for a decreasing number of younger workers, they will be compelled to reconsider the role of older workers. Thus, the future skill needs of Australian industry will be increasingly met through training existing, older workers already in the workforce rather than through the recruitment of younger people for training.

Meeting the training needs of outsourced part-time and casual workers is important too

The rather optimistic views about the upward trajectory of Australian skill levels in the wake of globalisation and occupational change are tempered by work analysing the impact of labour market changes on the skills and training needs of Australian workers. The most important trends in the nature of work in Australian in recent years have been the growth in the numbers of casualised workers and the increasing incidence of outsourcing in Australian enterprises.

Using data from the Australian Bureau of Statistics and the Australian Workplace Industrial Relations Survey (Morehead et al 1997), VandenHeuvel and Wooden (1999) have shown that the proportion of casual workers has grown from 15.8 per cent of the workforce in 1984 to almost 27 per cent in 1998. The definition of 'casual' workers is somewhat fraught, with a number of studies showing that casual workers may enjoy what amounts to permanent employment with a single employer. The ABS has defined casual workers as workers who do not enjoy employment benefits such as paid leave and sick leave and whose degree of attachment to the enterprise is thus lower than a permanent employee. This definition seems to capture the variety of employment arrangements found amongst casual workers whilst emphasising the precarious nature of their jobs. VandenHeuvel and Wooden examined the experience of training for both casual and permanent employees. They gathered data on the incidence of in-house training, external training undertaken with employer support (employer pays for training) and external training unsupported by the employer (employee pays for the training).

Their research shows clearly that casual employees are significantly disadvantaged in terms of employer-sponsored training whether it is provided in-house or

externally. This is not a surprising finding as employers may view casual employees as more likely to leave the enterprise as a result of their employment arrangements and therefore less worthy of investment. However, casual workers appear to undertake a significant amount of external training on their own account. This finding shows that although casual workers may not receive training from their employers to the same degree as their permanent colleagues, they are nevertheless investing in their own training and development. This supports the notion, discussed earlier, that workers are becoming more responsible for their own training and development and that training is becoming a more individualised process within Australian enterprises.

How much outsourcing is there and what are the effects on training?

The degree of outsourcing in the Australian economy is more difficult to estimate. VandenHeuvel and Wooden (1999) estimate that between 4 and 10 per cent of the workforce may be employed as contractors to other organisations. However, they caution that this figure may well understate the extent of outsourcing as many self-employed workers would not categorise themselves as contractors or employees of labour hire firms. In fact, they may view themselves as permanently employed although they are involved in the contracting business.

A survey of labour hire firms conducted by KPMG Management Consulting in Australia (KPMG 1998) showed that the major reason for the use of outsourcing was to meet peak periods of demand for the enterprise. In many cases this involved the use of highly skilled labour (for maintenance tasks and so on), so it cannot be concluded that outsourcing involves only the use of low skilled workers. However, the incidence of training within labour hire firms appeared to be quite low. Only 14 per cent of labour hire firms in the survey responded that they employed an apprentice or trainee.

The expectation appeared to be that employees of labour hire companies were recruited for their existing skills and were expected to maintain those skills at their own expense and in their own time. Thus, the growth of outsourcing would seem to be associated with a decrease in the incidence of industry training as enterprises no longer carry the responsibility for the training of outsourced workers and labour hire firms place little importance in training their own staff.

This assumption, however, may be challenged by the data from VandenHeuvel and Wooden (1999) who show that outsourcing seems to be associated with an increase in the incidence of in-house training for employees and in the level of training expenditure. The data for these observations comes from the Australian Workplace Industry Relations Survey (AWIRS) and VandenHeuvel and Wooden caution that

the measures of training used in the survey are crude with a large potential error. However, the AWIRS data seems to suggest that outsourcing, whilst it may lead to a decrease in training for those employees whose functions are outsourced, does not appear to lead to a decrease in training for those who remain.

Another perspective on outsourcing and casualisation

Hall and Bretherton in a forthcoming report note that the rise in outsourcing and casualisation has led to an increase in highly task-specific or job-specific training.

They suggest, like other researchers, that labour hire operators and providers also have few incentives to train, although there are exceptions.

Their study showed that support for training is provided when:

- The project or outsourcing contract tends to be medium or long term
- There is an established relationship between the client firm and the labour hire firm or outsourced services provider
- The skills involved are relatively specialised and are highly valued in the labour market
- There is a relatively close fit between the skills of candidates or available employees and the skills required
- There is a legislative, regulatory or contractual requirement for training
- There are government subsidies available that provide an extra incentive to support the training

They also reported that Recognition of Prior Learning (RPL) arrangements have enabled a number of non-standard workers they interviewed to have their skills formally recognised. The greater flexibility available under the new training packaging arrangements has also allowed some non-standard employers to develop workplace-based training programs that are compatible with their business imperatives.

Ultimately, however, the impact of the growth of non-standard work has meant that increasing numbers of non-standard workers are largely responsible for organising, accessing and funding their own training. The model of the 'portfolio worker' may well be applicable to some professionals with strong qualifications and skills that are in demand. However it provides an unrealistic model for the majority of non-standard workers (for example, cleaners) with few formal qualifications, limited skills and limited opportunities.

So what does all this mean for enterprises and providers?

It appears that the skills and training requirements for Australian enterprises are changing:

- There appears to be an increasing demand in Australian industry for higher levels of skills and a recognition that industry will have to increase its training effort in order to secure these skills. Higher level skills are already in short supply in many traditional skilled occupations.

- The source of these skills in the future will have to be the re-training of existing workers rather than the recruitment of people with the skills ready made. This shift towards adult re-skilling is also being driven by demographic projections which show that the Australian workforce is aging and that employers will increasingly rely on older workers as sources of new skills in the future. This has implications for the markets VET providers service and types of programs they will need to develop and deliver in the future.

- Changes in the Australian labour market are emphasising the emergence of non-standard forms of employment - casualised and outsourced workers. Although both of these trends are associated with a lower incidence of employer-supported training, it is clear that both casual and outsourced workers depend on their skills for their employment and are increasingly undertaking training at their own expense to maintain and increase their skills. This goes hand in hand with the individualisation of industry training and a changing role for the enterprise as a broker rather than a provider of training.

It is clear that the VET sector needs to do much more for these non-standard workers. The case study evidence cited in Hall and Bretherton's forthcoming report points to the existence of a large proportion of the non-standard workforce that is in desperate need of better information about available programs, greater assistance and more accessible advice regarding training options and opportunities. This provides a considerable challenge to providers to consider:

- Market research into the needs of these groups of older, experienced but (possibly) outsourced and casual workers
- The information they provide to potential clients
- The accessibility of that information

- The flexibility of their training programs in terms of when, where and how they are delivered, and how long they take to complete
- The cost of programs to their customers
- Providing more training in the workplace setting
- Providing approaches to training which help learners to acquire or hone their higher order or 'soft' skills
- A program design which reflects their clients' individual needs and is capable of being customised

Further reading

Allen Consulting Group 1999, *Training to compete: The training needs of industry*, Australian Industry Group, Sydney.

DETYA (Department of Education, Training and Youth Affairs) 2000, *Skills shortages in engineering*, DETYA, Canberra.

Hall, R, Buchanan, J, Bretherton, T, van Barneveld, K & Pickersgill, R 2000, *Making the grade?: Globalisation and the training market in Australia*, NCVER, Adelaide.

Hobart, B 1999, *Globalisation and its impact on VET: Review of research*, NCVER, Adelaide.

KPMG 1998, *Impact of the growth of labour hire companies on the apprenticeship system*, ANTA, Brisbane.

Maglen, L & Shah, C 1999, *Emerging occupational patterns in Australia in the era of globalisation and rapid technological change: Implications for education and training*, Monash University–ACER Centre for the Economics of Education and Training, Melbourne.

Marginson, S 2000, *The changing nature and organisation of work, and the implications for vocational education and training in Australia: Issues paper*, NCVER, Adelaide.

Morehead, A, Steele, M, Alexander, M, Stephen, K & Duffin, L 1997, *Changes at work: The 1995 Australian Workplace Industrial Relations Survey (AWIRS 95)*, Longman, Melbourne.

Smith, A (ed.) 1999, *Creating a future: Training, learning and the older person*, NCVER, Adelaide.

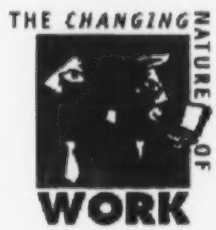
VandenHeuvel, A & Wooden, M 1999, *Casualisation and outsourcing: Trends and implications for work-related training*, NCVER, Adelaide.

Waterhouse, P, Wilson, J & Ewen, P 1999, *The changing nature and patterns of work and complications for VET: Review of research*, NCVER, Adelaide

Coming later this year

Hall, P & Bretherton, T, *'It's not my problem: The growth of non-standard work and its impact on vocational education and training in Australia*, NCVER, Adelaide.

Research at a glance, Changes to the nature of work: Implications for the vocational education and training system, NCVER, Adelaide.



Theme 1:
The 'big picture':
Globalisation, international trends and the nature of work

SIMON MARGINSON

Background to the research

The project reviewed the international literature on the nature and organisation of work. It aimed to summarise the research findings in a form which would make it suitable for a range of audiences, in particular policy makers and practitioners.

Key findings in general

Profound changes are occurring in technology, work and work organisation, with equally profound implications for the future role of vocational education and training (VET) in Australia. These changes have six elements, all of which are interrelated and tend to affect one other:

- Globalisation is creating a more internationalised economy and culture. The cost of travel and communications have been dramatically reduced. Above all, the world is now networked with more intensive and extensive relationships at every level. The nation is still a key factor in the global environment; but industry, government and VET institutions must become totally engaged with the global environment or face obsolescence.
- International competition is driving an accelerated rate of technological change, above all, in information and communications, which are key sources of productivity advance. Networked computing is associated with a workplace that is both more integrated and more devolved, and requires higher levels of cognitive and interactive skills.
- Technology is associated with a sharp drop in skilled blue-collar work, a sharp rise in skilled and semi-skilled white-collar work, and no increase in jobs overall. The most advanced companies are shedding labour.
- There is immense but uneven organisational change. The post-Fordist vision of flatter structures, loose networks and stimulating work all round is not occurring, although workplaces based on high participation, strong teams and integrated, multi-skilled jobs do tend to make productivity gains.
- There has been a sharp increase in non-standard work, especially part-time and casual labour, and people working shorter or longer hours. There is also

growth in 'telework' in the home, outsourcing and contracting out, and work for 'temping' agencies instead of stable employers. Most of this 'flexible' work is actually flexible only for the employer.

- There is a growing polarisation in incomes, in access to work and work security, and to technologies. There has been great growth in two-income families and no-income families, and a decline in one-income families.

The future of work will be shaped by technology, the capacity of labour, and change management. Training, along with research and development, work organisation and capital raising, will determine whether the Australian economy is a high-skill economy that provides for rising standards of living. The key elements in the future role of VET will be its capacity to integrate more closely with the workplace, and its capacity to integrate into the innovation cycle.

The aspect that has been under-estimated so far is *on-the-job training*—partly because it is difficult to identify where work ends and on-the-job training begins. (One study found that employer estimates of the amount of on-the-job training were 25 per cent higher than worker estimates.) On-the-job training leads to clear-cut productivity gains and is strongly supported by workers themselves. More use of mixed-mode (work/study) training programs is also essential.

If it can help to ease the passage into new technologies and speed the rate of their diffusion, VET can make a very major contribution to the competitiveness of Australian industry. Even more strategically significant is the development of a capacity in *continuous innovation*. Few firms are able to maintain this capacity and it is a major source of competitive advantage. It depends not only on flexible structures and on training at the cutting edge, but also the development of a workplace culture that is *skill reflective*—a workplace in which workers can put into practice their own judgements about the skills and knowledge they need to acquire in order to meet the needs of competition and technology.

To play this part, VET and its practitioners will need to become more global, better networked and closer to the technological edge in every industry. This is part of the 'public good' function of VET. In Australia, unlike most countries, the big firms—many of them the local branches of multinationals—tend to be weaker innovators than some of the small local firms. Yet the small firms do not have the capital they need. The role of government is therefore crucial, not least in supporting the targetted provision of general and industry training as required.

The role of government is important in other ways. A number of studies show that training opportunities tend to go to those with advanced levels of education (although this is less true at higher rates of technological change). Government and VET provide compensatory opportunities in an increasingly polarised setting. One of the major challenges before public policy in VET is to extend the policy network to

non-standard workers. Given the growing role of this sector of the workforce, the provision of structured training is not only essential for equity reasons, it goes to the heart of future workforce quality.

Implications for policy

Policy makers need to:

- Ensure that the training needs of non-standard workers (part-time, casual outsourced, contracting out, volunteers) can be met by the training and recognition arrangements
- Recognise the individual as an important client of the VET sector and ensure their needs are balanced appropriately with those of industry and employer groups
- Develop better mechanisms of supporting mixed work and study programs
- Develop better approaches to targetting the provision of general and more specific training for either/both individuals and enterprises

Implications for providers

Providers need to:

- Acknowledge their role in a global training market and establish relationships which will establish synergies and bring benefits to their clients
- Develop a flexible range of programs and resources to meet the diverse needs of individuals/clients, including improved induction processes and job placement services
- Work more closely with individuals/employers to help them to develop and manage their training programs, including those which are not part of the formal, recognised system

Implications for teachers and trainers

Teachers and trainers need to:

- Ensure that they network widely so that they keep up with changes in technology and work practices used in the industry

- Find ways of ensuring that the learning program overall assists in the acquisition of the generic skills needed by individuals/learners to survive in a changing workplace and workforce (eg. skills in innovation, teamwork etc.)

Three key issues arising from the research

1. Does your firm/organisation have the capacity to adjust quickly to global technological changes in your industry?

2. Does the training program of your firm/organisation foster innovation in products and processes?

3. Does your firm/organisation collaborate effectively with other firms in the industry in the provision of training?

Theme 2:
Changes in the Australian labour market: The impact on training arrangements (two research projects)

RICHARD HALL

Project 1: Making the grade?: Globalisation and the training market in Australia

Background to the research

The research was a response to widespread industry and VET community concerns surrounding the impact of economic globalisation on industry, changing employment structures and patterns and vocational education and training in the context of the emerging training market in Australia. The research responded to the general assumption that change, in particular the greater reliance on market mechanisms, is required to meet the new challenges associated with globalisation. In particular two questions were addressed:

- How does the industry training market actually operate in Australia?
- How well does the training market meet the needs of employers grappling with the challenges of globalisation?

The research involved a study of globalisation and the industry training markets in two industries in different regions: Metals and Engineering in the Hunter and in South West Sydney and Information Technology on the Central Coast of New South Wales and in South West Sydney.

Key findings in general

The principal effect of economic globalisation has been to increase dramatically the competitive pressures experienced by employers.

Increasing competitive pressure is adversely affecting employers' capacity or preparedness to make an adequate commitment to training investment and skills development.

In both industries employers lacked knowledge of:

- The opportunities presented by competency-based training and assessment (CBTA)
- The means by which CBTA can be introduced at the workplace level
- The flexibility of the new training packages
- The means by which group training companies (GTCs), networks and co-operative schemes can be used to support training

In both industries employers tend to attempt to recruit already skilled workers or buy in skills from labour hire, consultants or contractors, rather than take on apprentices or trainees, or train and develop the skills of existing or new employees.

In addition, in IT:

- Employers lack knowledge of the amount and type of training they require
- General and specific skills shortages are widespread at the medium and high levels
- Private, vendor-provided or certified training is comparatively expensive, product-specific and relatively technical
- TAFE courses do not enjoy strong industry support or widespread recognition amongst medium and high-end skill employers
- There is a general lack of co-ordination between training providers and employers

In addition in Metals and Engineering:

- There is the prospect of skills shortages and gaps becoming much worse as the combined effects of declining apprenticeship numbers, less formal structured training and outsourcing impact on the labour market
- There are difficulties in attracting satisfactory applicants for apprenticeships and traineeships
- Employers believe that many trades-level metals courses are so broad as to be impractical
- TAFE generally has insufficient resources to provide adequate field officers and industry liaison officers to provide an effective training brokerage service to employers

The emerging training markets in both industries are not responding to these challenges.

Implications for policy

Training reforms need to extend beyond the facilitation of training markets. Future reforms need to build on previous initiatives to establish new mediating structures that enhance co-ordination between all elements of these industries' skill formation systems.

Successful structures tend to be regional and industry specific. They enjoy the active participation of firms often in a network or co-operative arrangement. They allow training needs and burdens to be shared.

Implications for providers

Providers need to develop a better brokering capacity to identify and co-ordinate industry needs, trainee needs and interests and the development and marketing of better training products.

Implications for the role of teachers and trainers

Teachers and trainers need to be better supported by their training institutions through the development of industry liaison and brokering mechanisms.

Three key issues arising from the research

What incentives might encourage employers to increase their expenditure on training despite the financial pressures associated with increased competition?

Given that industry training markets are not always effectively matching supply and demand, what are the possible solutions? Is the solution a greater reliance on market mechanisms?

If there is a need for better communication and information flow between the training demand side (employers and those seeking training) and the supply side (providers), is there a role for extra-market structures and institutions?

RICHARD HALL

Project 2: 'It's not my problem': The growth of non-standard work and its impact on vocational education and training in Australia

Background to the research

This research responds to questions concerning the impact of the strong growth in non-standard forms of employment on the provision of VET in Australia. Non-standard employment is defined as casual employment, employment or engagement through labour hire firms and arrangements and outsourced work. A number of previous studies had suggested that casuals tend to receive less employer-funded training than permanents and that the introduction of labour hire and outsourcing was having a negative impact on training.

Key findings in general

As a result of the growth of non-standard work, there has been a shift in the balance of responsibility for VET in Australia. Employers using labour hire or outsourcing have tried to shift the burden of training onto the labour hire firm or the outsourced service provider. However these organisations are in turn trying to minimise any investment in training. At the same time the state's role in direct provision of generalist and comprehensive trade and vocational training has declined in favour of support for a training market and user choice.

The disincentives to investing in training from the point of view of employers relate to cost. Labour hire operators and outsourced service providers invariably state that they cannot afford to invest in training, given the tightness of margins, the competitive environment in which they operate and the pressure to keep labour costs to a minimum.

The responsibility for training thus falls mainly on the employee and yet they are faced with obstacles to training including the cost of training in an increasingly privatised market, an uncertain capacity to recoup the investment in training, the limited time availability and unpredictability of work commitments, and the lack of access to information and advice.

The key findings arising from the organisational case studies and life history interviews were that:

- When examining education and training issues associated with non-standard employment, most attention focused on induction and 'near fit' training. No employers examined assisted with the acquisition of foundation skills. Where such training occurred, it was all funded by either individuals or government.
- Many non-standard workers would prefer more ongoing and certain employment.
- Levels of non-standard employment appear to be rising because increased competitive pressure is forcing firms to cut costs in general and reduce fixed labour overheads in particular.
- Reducing fixed labour overheads is not simply a matter of increasing efficiency; it often involves shifting costs and risks onto the weakest party in an employment situation – the worker.
- The extent to which costs and/or risks are shifted to workers depends on their labour market position and how stable/durable relations are between the parties.
- Where skills are low and/or in abundance, no training will be provided; where they are of a higher order and scarce, some training, primarily of a 'near fit' nature, may occur.
- Ultimately, the level of training undertaken depends on the longevity of relations between the parties and the existence of institutional mechanisms to facilitate them.

Implications for policy

Employer expenditure on training needs to be stimulated. Labour hire operators and outsourced contractors need to be encouraged to make a greater commitment to training since they are the financial beneficiaries of the trend towards non-standard work. Possible ways of doing this include:

- Introduction of financial training incentives directed specifically at labour hire firms and outsourcing service providers
- Targeting employers who use non-standard workers to ensure they do not abdicate responsibility for training
- Encouraging non-standard workers to fund their own training where this is possible (e.g. for professional and managerial employees). Policy also needs to

recognise that many non-standard workers work for such low rates of pay and such irregular hours that it is unreasonable to expect them to make much of an investment in training

Implications for providers

For providers there is a significant, largely untapped market for training amongst labour hire workers and other non-standard workers. Providers need to consider working closely with labour hire firms, outsourced service providers, group training companies and organisations using labour hire or outsourced labour to develop training products and delivery methods designed for labour hire workers, outsourced workers and casuals.

Three key issues arising from the research

Labour hire firms and outsourced service providers appear to be the principal financial beneficiaries of the move to outsourcing and labour hire. How can these organisations be encouraged to invest more in the training of their employees and contractors?

If non-standard workers are more likely to be responsible for accessing and funding their own training, how should they be funded, compensated or financially subsidised for that training?

Many non-standard workers, especially casuals, are in need of resources, information and sources of advice regarding training options and opportunities. How can these resources and this information and advice be most effectively and efficiently provided?

THE CHANGING NATURE OF WORK

Theme 3:
Changes at the workplace

ANDY SMITH

New management practices and enterprise training

Background to the research

Since the early 1980s, Australian enterprises have become exposed to increasing levels of international and domestic competition. In the context of the globalisation of markets and the free availability of technology, enterprises have been compelled to seek improvements in performance from the better utilisation of their human resources. As a result, Australian enterprises, together with their counterparts in other parts of the developed world, have implemented new management practices (NMPs) with enthusiasm in a bid to harness the knowledge and creativity of their workforces.

The introduction of NMPs has a significant impact on employee training. The implementation of change programs often depends on extensive training programs that involve employees at all levels in the enterprise. The results of the National Survey of Enterprise Training undertaken by the Group for Research in Employment and Training (GREAT) at Charles Sturt University and the Research Centre for VET at the University of Technology, Sydney for the Office of Training and Further Education in Victoria and the Australian National Training Authority (Smith & Hayton, 1999) underscored the importance of this relationship between organisational change and training. The survey demonstrated conclusively that, after size and industry sector, workplace change was the most important determinant of the extent and diversity of enterprise training.

Aims of the research

In 1998, a team from Charles Sturt University led by Dr Andy Smith undertook a project funded through the National Research and Evaluation Committee. This project explored the changing nature of the demand for training in enterprises adopting new management practices and the implications for training providers of meeting the requirements of the fragmented training demand created by these changes. The research examined five NMPs:

- The learning organisation

- Total quality management
- Lean production/high performance work organisation
- Teamworking
- Business process re-engineering

These five NMPs were chosen because they reflect the most commonly reported organisational change processes in the existing literature. The study addressed five questions concerning NMPs and enterprise training:

1. To what extent are Australian enterprises adopting the new management practices?
2. What human resource (HR) practices are associated with the new management practices? Do these human resource practices form recognisable bundles?
3. What training practices are associated with each of the new management practices and how do they relate to other human resource practices?
4. How effectively have Australian enterprises adopting new management practices been able to meet their training requirements from the VET system?
5. What should training providers do to be able to meet the changing demand for training from Australian enterprises?

The study involved two forms of research:

- A survey of over 3400 private sector enterprises
- A telephone survey of 80 human resource practitioners to follow up on issues arising from the survey analysis

The survey was distributed to 3415 HR managers in August 1998. In an effort to improve the overall response rate and to gauge the likely presence of non-response bias, two mail-outs were conducted. The second mail-out commenced three weeks after the first mail-out. Overall, the effective sampling frame consisted of 3241 organisations from which 584 useable responses were gained; this translates to an effective response rate of 18%. The sample for the telephone interviews was developed from a sub-sample of the sample used for the main survey. A group of 200 were selected for contact. Of the 200 enterprises contacted, 78 agreed to participate in a 20-minute telephone interview, representing a 34 per cent participation rate.

Extent of the adoption of NMPs

The survey revealed a very clear picture on the extent of adoption of NMPs in Australian enterprises. The main points were as follows:

- The enterprises in the sample have a relatively strong pre-disposition for a learning organisation philosophy, the use of Total Quality Management (TQM) and the use of lean production methods.
- Learning orientation, TQM and lean production are more common in small-medium sized enterprises with some industry concentration in manufacturing, retail, construction and finance/business services sectors.
- The use of business process re-engineering methods is less widespread and more evenly distributed by enterprise size and industry type.
- The use of workteams is quite widespread with 63 per cent of enterprises reporting their use of workteams.
- In enterprises where workteams have been established, the majority of employees are usually involved but with only a limited level of decision-making discretion. However, smaller enterprises tend to involve more employees in teams and grant them more autonomy.

Key findings from the project

The research identified important findings in six key areas:

Small business. The survey revealed that size was not positively correlated with any training practices except for the existence of a training manager. It is the adoption of NMPs such as TQM and teamworking in particular that have emerged as the most important explanatory factors for training. Small businesses are high adopters of organisational change and are, therefore, likely to make significant investments in training. However, the infrastructure for internal training is not so well developed in small business. Thus, small business will tend to develop less formal and more innovative methods of training to ensure that the right skills are developed in the workforce.

The use of the VET system. An important finding from the research is that much training is sourced internally. Organisations do not rely heavily on external training. The telephone interviews revealed a relatively high use of private training providers and consultants. However, private providers tended to be used only for certain specialised forms of training. The use of TAFE by enterprises in both the surveys and the telephone interviews was quite low. However, many enterprises in the telephone

survey highlighted the importance of TAFE for the training of individuals. This highlights an increasingly important role for TAFE as a major provider of adult retraining and professional development. This lack of engagement with the VET sector was further highlighted by the low use made of competency standards for training within enterprises. Most of the training carried out at the enterprise level in Australian organisations is not based on competency standards and would, therefore, carry no recognition within the National Training Framework.

Importance of the individual. Many of the enterprises in the telephone survey sample were undertaking individual training needs analysis and/or introducing performance management systems that focused on the development needs of individuals. There was a distinct move away from traditional methods of training which imposed the same training programs on groups of employees or all employees. Enterprises were increasingly concerned to focus their training activities so that they could achieve value for money and this process involved a shift towards individualised training programs. Thus, not only are individuals becoming more important in driving the provision of training within enterprises, they are also increasingly the focus of much of the training investments that are being made.

Nature of training. Training is becoming more formalised with a higher than expected incidence of written training plans and the use of formal needs analysis processes to determine the training requirements of the enterprise. Responsibility for training is increasingly decentralised to line managers and the incidence of specialist training departments and training managers is quite low. At the same time there is an increasing number of workplace trainers/instructors which suggests that training is being delivered primarily internally and by non-specialist training staff. Enterprise training is not linked to the National Training Framework. Competency standards are not being used to inform most enterprise training and much of the training remains uncredentialled. This raises the issue of the skills of workplace trainers/instructors. The apparent low level of accreditation or understanding of the national standards suggests that few workplace trainers/instructors have received much training in how to train and instruct. This raises serious concerns about the quality of enterprise training delivered by workplace trainers.

Importance of behavioural skills. The results of this survey show that behavioural skills are a major focus for training effort at the enterprise level and that many of the new management practices demand these skills from employees. This suggests a shift in the nature of skills requirements at the enterprise level away from narrow technical skills and towards a new training paradigm that emphasises the need for developing broad sets of generic skills in the workforce in order to increase adaptability. The VET system, with its focus on technical, job-related training, may not be well placed to deliver the kind of training that employers need. Thus, enterprises are compelled to provide the training themselves and, in so doing, do not turn to the VET system to meet their requirements.

Organisational change. The research has shown unambiguously that most NMPs are associated with higher levels of enterprise training. TQM, teamwork and learning orientation are all associated with higher levels of training activity and a greater diversity of training. Lean production, understood in most enterprises to be synonymous with cost reduction, is associated with the reduction of training activities. However, teamwork, the most prevalent of the NMPs investigated in this study, is associated with a more even distribution of training in the workforce and, where teams are given reasonable levels of autonomy, with more formalised and externally sourced training.

Implications for policy

There are a number of clear lessons and policy implications that arise from this discussion of the findings from the study.

The disengagement of enterprises from the VET system in terms of the use of national competency standards, accredited training and TAFE is a source of major concern. The study has highlighted how many organisations do not see the value of accredited training or the TAFE system in meeting their most pressing training needs. A national training system that is based on the development of technical job skills predicated on the use of national competency standards appears to hold little attraction for enterprises that wish to develop the generic behavioural skills of their employees and more concerned with attitudes and adaptability than with technical job competence.

Small business should not be dismissed as uncaring or unconcerned about the training and development of their employees. Smaller enterprises often have a very clear perception of the skills needs of their employees but, lacking the training infrastructure associated with larger enterprises, have been compelled to develop more innovative and less formal means of meeting those skills requirements.

The notion of individualisation raises the issue of entitlement to training. If the individualisation of training progresses then the emphasis will move away from training at the enterprise level to training at the individual level and this move will bring into focus national policy on the entitlements of individual workers to training and retraining throughout their careers.

Workplace change is a major driver of enterprise training. The pace of change in Australian workplaces shows no sign of slackening (ACIRRT 1998) and this study has confirmed the evolutionary and continuous nature of change. In the future this can only lead to an increasing demand for training. The policy question is not so much how to encourage employers to invest more in training so much as how to

ensure that the training that is taking place delivers the best possible outcomes for enterprises, individuals and the country at large.

Implications for providers

The increasing individualisation of training has highlighted a key role performed by the TAFE system. It is already well known that 80 per cent of TAFE clients are adults undergoing some form of professional development or retraining. The study shows that enterprises are keen to take advantage of TAFE's capacity to reskill and develop existing employees and are willing to sponsor individual employees to undertake this form of training. This focus on reskilling and professional development of the existing workforce represents a major way in which the VET system can reconnect to disaffected employers and underscore the importance of giving individual accredited training that enhances their utility to the enterprise and improves individual marketability in a labour market where jobs can no longer be guaranteed for life.

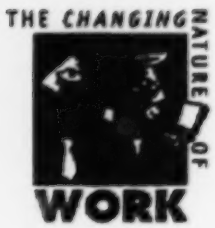
The study has confirmed that, despite the fear evoked by the apparent downturn in employer expenditure on training (ABS 1997) in recent years, there is a lot of training happening in Australian enterprises. Enterprises in the survey sample (biased to larger enterprises) were spending on average 4.3 per cent of payroll on training in 1997–98. The telephone interviews revealed a less consistent pattern but most enterprises were undertaking training of some form for their employees. However, the type and quality of the training being provided in Australian enterprises is questionable. The decentralisation of training and the extensive role now being played by untrained workplace trainers raises the question of whether enterprises are getting the most from their extensive training investments. There may be an important emerging role for training providers in acting as consultants to enterprises to ensure that they reap the full benefits of their training investments by ensuring the quality of the training process at the enterprise level.

References

ABS (Australian Bureau of Statistics) 1997a, *Employer training expenditure Australia, July to September 1996*, AGPS, Canberra.

ACIRRT (Australian Centre for Industrial Relations Research and Teaching) 1999, *'Australia at work: Just managing?'*, Prentice Hall, Sydney.

Smith, A. & Hayton, G. 1999, What drives enterprise training? Evidence from Australia, *International Journal of Human Resource Management*, 10:2, 251-272.



Theme 4:
The provider perspective

PETER WATERHOUSE

Background to the presentation

I want to begin by saying that I am here today primarily because I was fortunate enough to work on a *Review of Research* for NCVER with Bruce Wilson and Peter Ewer. The frame of reference for our review was broad – addressing the *Changing nature and patterns of work and implications for VET*. We defined 'work' and 'workplace' in fairly conventional terms, thus keeping the focus on paid work and employment. I make this point at the outset because a different approach might radically redefine the problems. The way that we name and frame problems has a considerable bearing upon the strategies we develop to address them.

Secondly, I need to say that whilst our review was quite broad ranging, I have been asked in this presentation to focus on the implications for providers and teacher-trainer-practitioners. I want to focus upon *changing work and changing teachers* – although exactly what we mean by 'teachers' is also changing – as we shall see. Thus I am coming at the issues from the perspective of a provider-practitioner and a practitioner-researcher.

Key findings in general

Thirdly, there is not sufficient time in this presentation to address all of the findings of the literature review. Looking back over the last 25 years we noted, for instance:

- the workforce has become more 'feminised' through shifting patterns of participation
- unemployment has re-emerged as a significant factor
- increasing part-time and casual arrangements
- employment has shifted across industries
- the workforce is less unionised
- knowledge has become a significant new form of capital
- changes have generated mixed blessings for workers

We reported that the universality of the full-time permanent job is now historical – it is no longer the norm (if it ever was). Things have changed. We noted how changing work patterns may also alter traditional patterns of living. Whilst we could identify what I would call 'broad brush' patterns, we also noted that the picture is not homogeneous. Indeed, *the shifts constitute a complex restructuring of the world of work.* We concluded that the changes suggest complex and multiple implications for VET. In short, there are no simple answers.

It is worth noting here that Kaye Schofield's recent report to the Victorian government (which follows substantial reviews investigating the quality of VET provision in three state systems) makes a very similar observation. Schofield states:

> *While most stakeholders rail against this complexity and long for simplicity, the truth of the matter is that the system is now, and is likely to remain complex. While end users - apprentices, trainees and employers – must be presented with the most simple user-friendly interface possible, behind this interface lie many competing interests and priorities that have to be balanced.* (Schofield 2000, p.70)

Broad VET implications

Attempting to provide an overview, we made the observation that VET faces the 'double bind' of coping with the changes whilst simultaneously providing support services and products to assist other industries. There is a need for diversity and creativity in VET policy responses at all levels. Policies need to recognise the importance (and different needs) of multiple clients, learners and stakeholders. We argue in the review that a paradigm shift is required, from pre-packaged materials for 'delivery' to dialogue on design.

Implications for providers

Turning to the implications for providers, we reported that the research literature suggests the need for providers to become 'learning organisations'. This entails providers not merely teaching about organisational learning, but consciously modelling and practising what they 'preach'. We noted that the principles of creativity, diversity and flexibility need to be applied to professional development. We need to find ways of initiating and sustaining learning and development at all levels and across a wide range of contexts.

We noted that at the grass roots level it is providers and practitioners that have the task of translating policy into practice. In this context providers need to recognise the

importance of regional frameworks and initiatives to connect VET with local and community development networks. Thus providers need the capacity to interpret and implement policy flexibly and creatively at the local/regional level in response to local needs and in collaboration with existing networks. This finding is consistent with the appreciation of the complexity in the system. As some have said, 'one size doesn't fit all'. I would add here that the Adult Community Education (ACE) sector has a key role to play in these local/regional networks.

We also noted, however, that the complexity and diversity of the field also gives rise to ambiguity, paradox and contradiction – these are difficult qualities to embrace within the context of public policy.

Implications for teachers and trainers

In the time remaining, I want to turn to the implications for teachers-trainers-practitioners. The first point to note is that our language is inadequate to the debate here. The term 'new VET professionals' has been used by some to promote a broader more inclusive view of VET teachers-trainers. But this label also has its difficulties; not all of those involved in learning identify with VET and not all can be considered 'professional' in their orientation or their practice. The term 'professional' also has its difficulties. Whilst for some it signals a commitment to high standards of conduct and practice, for others the term 'professional' signals notions of exclusivity and privilege.

What is clear is that there are many players involved. A short list might include teachers, trainers, instructional designers, writers, software developers, graphic artists and illustrators, technical specialists, workplace supervisors, coaches, mentors, learning facilitators, assessors, instructors, team-leaders, frontline managers, senior managers, shop stewards and union organisers, training consultants, brokers and placement agents. There are multiple players, multiple roles and some players playing multiple roles. All of these people, in diverse ways, determine what is educationally possible – and impossible in any given context. VET teaching and learning is no longer the province of an exclusive group of teachers or instructors.

Whilst the debates about professionalism and de-professionalism of the VET field and skilling and de-skilling of teachers continue, it is apparent that we are talking about a very broad and diverse group of practitioners. Much more needs to be done to clarify the language we use and the roles of the diverse players – not to establish territories and demarcation disputes – but to generate new understandings about the necessary hybrid forms of practice that are emerging in response to needs. It is apparent that the needs and skills of the 'new VET professionals' may not

correspond closely with 'traditional' notions of VET practice – and their 'new learners' may also not correspond to traditional notions of TAFE/VET students.

The multiplicity of players and roles also places practitioners under pressure to become more entrepreneurial and multiskilled. They are increasingly expected to adopt roles that have not been previously part of their professional repertoire. Furthermore, the multiple roles teachers/trainers are called upon to play may be, at times, contradictory. These contradictions are not always identified, or acknowledged, and the implications are still to be worked through. We can also note that the changes in the nature and patterns of work that affect the VET industry and VET providers as much as anywhere else, mean that practitioners' career pathways are more likely to be non-linear and more fragmentary. For instance, the implications of casual and contract modes of employment are already part of the everyday lived experience of many practitioners. I would like to share the following poem with you – as one illustration of this lived experience.

Dear Director, Dean, Manager or Principal,

Re: Employment opportunities

Might you have a vacancy for a reflective practitioner?
I'm learning to navigate Schon's swamp,
to recognise corporate crocodiles
& avoid administrative quicksand.
I'm becoming a critical thinker,
awakened to the discourses of power & privilege.
I've mastered my TLAs*
CBT, ITB, RPL & the rest.
I'm right into Managing Change.
I'll be clever & creative if I can,
willing to give re-training
& multi-skilling a go.

It seems there are two categories under which I might apply,
Casual & Contract.
I have only two questions.

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* TLA- Three Letter Acronym

If you said I could be a Casual Employee
& I came in casual,
wearing shorts, thongs & T-shirt,
stashed my Esky under the desk,
put my feet up & said,
'*OK dudes - what's on today?*'
You'd say I wasn't professional
& show me how casual
is easily made into casualty.

Yet when I rush between jobs
hot & flustered in city traffic jams:
when my mind is fractured into half a dozen different desks,
in different places, with different faces,
& what I want is always at the last one:
when I'm forced to make a hostage
of my professionalism
& cram it into a cardboard box
in the boot of my car:
when my spouse spits the dummy
at the endless unpaid hours
of preparation & development
& I am torn - because I respect my students
& I want to do it for them:
when I experience all of this,
it doesn't seem very casual to me.

So I ask,
for whom is casual employment casual?

But perhaps you say I can go on Contract.
If so I can offer you professional
commitment & competence
integrity & loyalty
dedication to the work.

Yet it seems your contract
leaves little room for strategic planning,
with staff security shrunk to single semesters.
Curriculum Development is reduced to
punching out packages for
'flexible delivery'

by the Unknown Trainers who win the tender
& Professional Development
doesn't rate a mention in your contract,
though I'm sure you'll support me
with smiles & words of encouragement.
I notice your contract falls just short
of my vacation,
but worse, far worse,
it falls well short of my vocation.

I'm ready to work;
prepared to be challenged & stretched -
expanded to meet new horizons
& to continue developing.

And so my second question is,
why would you want to contract
my professionalism & my profession?

One of the rich ironies of this piece is that when I wrote it back in 1994 I was able to direct the anger and frustration outwards towards the director, dean, manager or principal. Now I am the director-manager and I am still wrestling with the same issues. The truth is I do not want to contract my profession, or its professionalism. I want to expand and continue its development. However the change management process requires us to recognise and appreciate the intensity of the emotions being carried and stirred. We ignore them at our peril, so I make no apology for their inclusion here. Indeed, in my view, we need more qualitative research that helps us to gain a richer and deeper appreciation of the lived experience of VET practice across a range of different contexts. We need richer descriptions and more detailed critical analyses of 'traditional' institutional settings, of workplaces and industrial settings, of community and ACE environments, of the experiences of virtual classrooms and campuses and of the many hybrids and combinations of these that may be possible.

Directions for further research

My time has expired. I want to conclude by highlighting the need for further research. In the review we noted three interrelated areas of inquiry. The first picked up the notion of developing learning communities. We might ask what characterises an effective learning community and how might such communities be developed?

Secondly we were intrigued by the notion of collective competence – as distinct from individual competence. We might ask, what is the relationship between individual competencies and group, or collective, performance?

Finally, we are operating within a policy context that is promoting the advantages of workplace learning. However there is much that we still fail to understand about the nature of workplaces as learning environments. Whilst they have rich potential, most workplaces also have significant limitations as learning environments. We need to appreciate these limitations as well as the possibilities.

From the practitioner perspective it all seems, at times, a bit daunting. However buried within every crisis there are opportunities as well as dangers. I trust that collectively we do have the ability to recognise the opportunities and the courage and the creativity to exploit them whilst gracefully sidestepping the dangers.

Three key points: Discussion starters

1. Are we defining 'vocation' and 'vocational' in the most strategic, purposive and helpful ways?

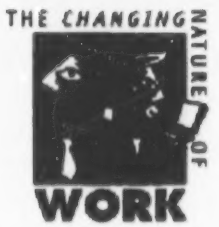
   The term *vocation* (mostly used as an adjective, as in 'vocational training') has come to mean, quite simply, 'job' or 'work'. The term used to refer to a 'calling', a purpose, a way of being and behaving. A vocation, in the more traditional sense, entailed a set of values and principles that might span several jobs (or a single job) over a person's lifespan. Vocation, in this more traditional sense, is as much about culture and community as it is about competence. What would be the implications of conceiving, promoting and practising 'vocational education' in this way?

2. Are the current arrangements, at all levels of the VET system, the best possible arrangements to support the professional development that needs to take place?

   The research suggests the need for professional development at multiple points throughout the VET system. The professional development needs are also at varying levels of sophistication. Do prevailing policies, work practices and systems of work organisation maximise the opportunities for these needs to be addressed – or do they militate against the developments required?

3. What changes are required to enable VET policies, systems and practices to better meet the needs of diverse clients, learners and stakeholders within different contexts?

Despite 'broad brush' trends and patterns, the complexity, heterogeneity and dynamic nature of the context suggest the need for flexibility and creativity in VET policy and practice. VET systems need to respond effectively to the needs of multiple stakeholders and operate within diverse (and sometimes even conflicting) policy parameters (national, state, regional, enterprise, union etc.) How effectively do existing arrangements enable VET providers and practitioners to reconcile the tensions, negotiate with the many stakeholders and implement appropriate responses/programs? How might the existing arrangements be improved?



SOME OTHER RESEARCH AND REPORTS ON CHANGING NATURE OF WORK

Ackerman, F, Goodwin, N R, Dougherty, L, Gallagher, K, (eds.) 1998, *Changing nature of work,* Island Press, Washington, D.C.

This book is an edited collection of summaries of articles which examine the causes and effects of the rapid transformation of the world of work. It provides a concise overview of the key writings by a wide selection of authors on work and workplace issues, including the social and psychological dimensions of work, labour economics, industrial sociology, industrial relations, and social psychology.

Australian Bureau of Statistics, 1999, 'Casual employment'. Feature article in Labour Force Australia, July, Catalogue No. 62.03.0, available at http://www.abs.gov.au

This article examines the recent growth of casual employment in Australia. In recent years, there has been considerable discussion on the changes occurring in the structure of the Australian workplace. In particular, there has been strong growth in the number of casual employees compared to other employees. Between August 1988 and August 1998, 69 per cent of net growth in the number of employees was in casual employment. Casual employment is most common for employees under 25 years of age and is more prevalent for females than males. Casual employees tend to work in lower skilled occupations, and in seasonal industries. The increase in the number of casual employees in Australia between 1988 and 1998 was much greater than that of other employees over the same period. This increase has been particularly evident for males and for employees aged between 15 and 19. The proportion of casual part-time employees reporting that they would like to work more hours per week also increased.

Australian Centre for Industrial Relations Research and Training (ACIRRT) 1999, *Beyond the fragments?: The experiences of a community based labour hire firm in achieving flexibility with fairness for low paid casual workers*, Dusseldorp Skills Forum, Sydney

Work arrangements in Australia have changed dramatically over the last two decades, with increasing casualisation of the workforce, predominantly at the low end of the labour market. Part 1 of this report examines the growth of 'non-standard' employment. Large numbers of people flow between different types of employment states. At the lower end of the labour market, many move between being out of the labour force and in casual employment. It examines how the growth of non-standard work can be managed, if at all. In this new setting labour hire firms have emerged as important intermediaries in the labour market. Career WorkKeys (CWK) is a community-based labour hire company operating on the Central Coast of New South Wales and was established to benefit casual workers, the employers hiring them and the community. Its key objectives are to enhance the quality and value of part-time and casual workers, improve employment security in this form of work, and develop the skills of part-time and casual workers. This report provides an account of the organisation's first 18 months of operation and examines some of the problems facing an ethical scheme like CWK, competing in the same market as other profit motivated labour hire firms. It emphasises that unless the importance of labour market flows is grasped, the challenges confronting organisations such as CWK cannot be properly understood. The changing nature of work has meant that the relationship between the employer and the worker is becoming more transient and indirect. Three potential scenarios are offered for labour hire in the future. The first, and most likely, is a continuation of current trends, involving labour hire firms providing a service that primarily benefits employers and results in little or no enhancement of workforce skills. The second scenario involves the emergence of 'quality' labour hire arrangements that work on essentially the same principles that characterise the best of the group training companies. The third, and more ambitious scenario, would involve labour hire arrangements becoming the focal point for new approaches to managing and enhancing the value of labour. The final section of the report addresses basic issues of systems design including suggestions about the regulation and operation of labour hire arrangements. This report highlights the importance of ensuring that new forms of employment enhance both efficiency and fairness.

Campbell, I 1996, *Casual employment, labour regulation and Australian trade unions*, (working paper no.43), Monash University. National Key Centre in Industrial Relations, Melbourne

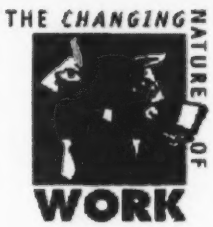
The author explores the implications for trade unions of the rapid expansion in Australia of casual employment, an unprotected employment. The role of award regulation in shaping casual employment is highlighted.

Cane, G, 1999, 'Changing nature of work requires rethink on training', *Training and development in Australia*, vol. 26, (2), April, p.10, Australian Institute of Training and Development, Melbourne

In this brief article, the author in her role as Executive Director of Business Skills Victoria, calls attention to four key areas of focus for the vocational education and training sector in effectively assisting the business services, finance and property sectors in the development of a skilled workforce able to adapt to the challenges facing these industries in the future. The key areas are training for micro and small business, the development of management skills, quality of training products, and program delivery to emerging and under-served sectors.

Council of Churches for Britain and Ireland 1999, 'Changing nature of work', *Education, training and the future of work I: Social, political and economic contexts of policy development*, Ahier, J, Esland, G (eds.), Routledge, London pp. 14–30

A range of issues - social, moral, political and economic - that are central to the discussion of the future of work are outlined. Three interrelated strands are highlighted. The first is the introduction of new technology, especially in communications and information processing. The second is the changing composition of the labour force, with male participation rates falling and female participation growing. The third is the liberalisation or deregulation of markets resulting in greater intensity of competition both within the country and internationally. The authors argue that there are new ways in which forms of employment can, and should, be generated. They are critical of the decline in employment protection and the consequent rise in levels of job insecurity. This is seen as having a damaging impact on families and relationships. The paper is written from a Christian point of view. The Council of Churches for Britain and Ireland originally published the chapter in 1997 as part of a report entitled *Unemployment and the future of work.*



Curtain, 1996, *Meeting the training needs of flexible workers*, ANTA, Canberra Institute of Technology, Canberra

The non-standard component of the workforce is growing, and persons in non-standard or flexible employment have needs that are often different from those of full time, permanent employees. Non-standard work includes self-employment, part time work, home based work, subcontracting, fixed term employment (for a specified period or tied to the completion of a project), agency work and casual employment. Available evidence indicates that access to training is limited for persons in non-standard work compared to others in employment. The terms of reference for this project were: to describe the occupational and geographic profile of the non-standard workforce; to identify current access to training experienced by non-standard workers in the light of their training needs; and to recommend how key industry groups and enterprises can adapt competency based training (CBT) structures and arrangements to meet these needs with a view to trialling them.

Ahier, J & Esland, G (eds) 1999, Education, training and the future of work I: Social, political and economic contexts of policy development, London, Routledge

This is the first of two volumes of readings. Volume I is organised around the theme of the social, political and economic contexts of education and training. The papers are intended to extend and deepen the debates about post-compulsory education and training by placing them within the broader context of economic and employment policy, both in the UK and internationally. The papers and the authors are: Introduction / Geoff Esland and John Ahier; The changing nature of work / Council of Churches for Britain and Ireland; Education, globalization and economic development / Phillip Brown and Hugh Lauder; The great work dilemma: education, employment and wages in the new global economy / Martin Carnoy; The new knowledge work / Stanley Aronowitz and William DiFazio; Jobs and people / John Grieve Smith; Evaluating the assumptions that underlie training policy / Ewart Keep and Ken Mayhew; Expanding employment / Council of Churches for Britain and Ireland; Managerializing organizational culture: refashioning the human resource in educational institutions / Geoff Esland, Karen Esland, Mike Murphy and Karen Yarrow; The University of Life plc: the 'industrialization' of higher education? / Richard Winter; Economic restructuring and unemployment: a crisis for masculinity? / Faith Robertson Elliot; Social change and labour market transitions / Andy Furlong and Fred Cartmel; Big pictures and fine detail: school work experience policy and the local labour market in the 1990s / John Ahier and Rob Moore.

Ellyard, P 1998, 'Creating and preparing for jobs in the 21st century' in *Working 2001 employment futures conference: Keynote addresses*, Fremantle, WA, 19 - 20 February 1998, Western Australian Dept of Training, Perth pp.41–60.

This paper discusses job categories, products and services and work organisations of the first quarter of the 21st century. The author maintains that by the year 2020 a new post PostModern paradigm will dominate, which he calls Planetism, which will in turn determine early 21st century markets including labour markets. As we approach the threshold to a new millennium we are witnessing the birth of a new planetary culture, which is being moulded by a combination of political, economic, technological and ecological forces which are all working synergistically to create it. The Earth is becoming more interdependent and co-operative. Educational planners will need to understand the nature of this world and the values and skills which will be needed, and changes will need to be made to what people learn and how people learn. Seventy per cent of the job categories, products and services of the year 2020 have yet to be invented. Many of these will develop to transform the Modernist and PostModernist world of the 20th century into a Planetist world of the 21st century. He then goes on to outline the learning and innovation cultures which need to be developed in individuals and organisations for the new century, the qualities needed to guarantee individual success, and the industries and enterprises which are likely to emerge.

Hall, R, Buchanan, J, Bretherton, T, van Barneveld, K, Pickersgill, R 1999, *Making the grade?: Globalisation and the training market in Australia*, NCVER, Adelaide

The primary objective of the project underpinning this report has been to assess the value of currently held assumptions about the effects of globalisation on economic life in general and working life in particular, especially as they impact on the field of vocational education and training (VET). Two questions have been addressed. The first asks how the industry training market actually operates in contemporary Australia, and the second asks how well it meets the needs of employers dealing with the challenges of globalisation. The project focused very precisely on how the processes of closer international economic integration have worked themselves out in two industries, one traditional (metals and engineering) and the other new (information technology).

Lowe, G S, Schellenberg, G, Davidman, K 1999, *Re-thinking employment relationships, Canadian Policy Research Networks*, Ottawa (CPRN discussion paper, no. W/05)

This paper argues that the 'standard employment model' developed in the years after World War II and used to describe employment practices, is no longer adequate

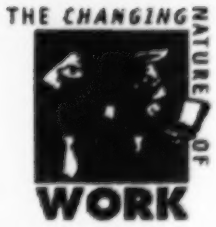
as a basis for understanding paid work. As economic transformation redefines work structures, there is a need to understand the nature of the employment relationships inherent in these structures and the ways in which they are changing. This discussion paper aims to provide a conceptual basis for research into these changing employment relationships, and to facilitate discussion amongst policy makers, researchers and practitioners, about appropriate responses to these changes. Employment relationships are defined as the rights, obligations, expectations, values and rewards that characterise interactions in the labour market. The paper is divided into three main sections. The first outlines a case for research into employment relationships, the second identifies major themes and issues apparent in the existing literature on employment relationships, and the third examines the implications of changing employment relationships for labour market stakeholders at individual, organisational and institutional levels. In conclusion, the authors present a number of research questions and strategies to lead new research into employment relationships.

McClelland, A, Macdonald, F, Macdonald, H 1999, *'Young adults and labour market disadvantage?: The situation of young adults not in education or full-time employment' in Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Sydney pp.117–133

McClelland and Macdonald (Brotherhood of St Lawrence) draw from Australian Bureau of Statistics (ABS) data to provide information about the dimensions and circumstances of the group of young adults not in full-time employment or studying as a whole. Next, they examine activities of sub-groups; unemployment, part-time employment or non-labour market activities. The backgrounds of this group of young adults are considered and a discussion of policy implications is included.

MacNeill, K 1995, *Reading the signs: A review of factors affecting the future of work*, Brotherhood of St Laurence, Melbourne

Provides the reader with an overview of the ways in which work is being transformed. It canvasses past, present and likely future trends in paid and unpaid work, work force participation, unemployment and incomes as well as the key issues raised by these trends. It outlines the economic, social and technological factors which are contributing to changes in work and work patterns. A valuable guide to factors shaping the future of work.



Marginson, S 2000, *The changing nature and organisation of work, and the implications for vocational education and training in Australia: Issues paper*, NCVER, Adelaide

In this book the profound changes that are occurring in technology, work and work organisation are discussed, with particular reference to the equally profound implications for the future role of vocational education and training (VET) in Australia. First, the 'big picture' is discussed from both a global and a national perspective, looking at competition and technological change, industry and skill composition, and Australian imperatives. The world of work and work organisation is examined, and implications for VET in Australia. An annotated bibliography is provided on an accompanying diskette.

Morehead, A, Steele, M, Alexander, M, Stephen, K, Duffin, L 1997, *Changes at work: The 1995 Australian workplace industrial relations survey*, Addison Wesley Longman, Melbourne

There is strong statistical evidence indicating that the intensity of work has increased during the 1990s - and the trend shows no sign of ending. This study conducted by the Department of Workplace Relations and Small Business found that over half of the 19 000 employees (in 3700 workplaces) surveyed reported that their workload had increased during the year. The number of hours worked increased for a quarter of all employees, although the trend was uneven, there was a decrease for casual and part-time workers and a significant increase for managers and professionals. According to the study, the average number of hours worked across the workforce was 38.9 hours per week, but full-time workers generally worked 44.1 hours; full-time male workers put in 45 hours. About half of the respondents said that the pace of work had intensified, due to changes in the structure of the workplace and the nature of the work. About 80 per cent of all workplaces surveyed had undergone major organisational change in the two years prior to the study. Reasons underpinning the rising tide of change included the need to improve productivity and efficiency, improve customer service or product quality, reduce overall costs, and generally become more competitive. Benchmarking against overseas organisations is widespread, indicating a powerful awareness of competitive pressures in the international marketplace.

Robinson, C 2000, *New directions in Australia's skill formation: Lifelong learning is the key*, NCVER, Adelaide

In this report, developments in the changing nature of work and demographic structure of the population are examined in terms of what implications they might have for changes in Australia's approach to skill formation. Skill formation developments in Australia are then considered, particularly in terms of the key

developments which have occurred in recent years. The historical focus on the young in post-compulsory education and training policy is examined. The more recent trends both in Australia and overseas, which recognise that these policies now need also to embrace the concept of lifelong learning, are explored, along with the question of the extent to which Australians are currently lifelong learners. The adequacy of Australia's investment in education and training is also examined. Some possible strategies to better meet our emerging skill requirements are also considered.

Sefton, R & Waterhouse, P 1998, 'Developing a culture of research in a VET provider', in Selby Smith, C, Hawke, G, McDonald, R, & Selby Smith, J, *Impact of research on VET decision making*, NCVER, Adelaide, pp.140–143

This case study investigates the impact of research upon the policy and planning and also the practice and performance within a registered private provider of training operating within the Victorian system of vocational education and training. The authors argue that the case study demonstrates the importance of connections between research in various domains and the day-to-day operations of VET practitioners, and suggest that 'a culture of research is required at the provider level for the findings of research to be valued, applied in practice and consequently confirmed or modified'. They also consider how organisations gain access to and 'take on board' the findings of such work; and argue that personal contact with researchers and scholars enhances the impact and use of research processes and research findings.

Smith, (ed.) 1999, *Creating a future: Training, learning and the older person*, NCVER, Adelaide

Changes in workforce demographics have great significance for the training and learning of older people. As older workers remain in the workforce longer and are increasingly subject to career change, access to training and learning opportunities will become more important to them. The aim of this book is to explain how training and learning have assisted the participation of older workers in the workforce. It also identifies the specific training issues facing older Australians to assist this sector of the workforce to achieve its potential.

Tessaring, M 1998, 'Future of work and skills: Visions, trends and forecasts', in *Vocational education and training: The European research field: background report 1998, volume 1*, European Communities, CEDEFOP, Thessaloniki, pp.271–317

This paper considers the future of work in Europe in the light of European integration, the disruption of labour markets on a global scale and ongoing structural

change within economies. The paper begins with a philosophical overview of the nature and history of the concept of work and follows with a discussion of sectoral employment trends, innovation and the process of business re-engineering. An examination of the effects of these macro-processes on skills and the structure of jobs and employment in general then leads to a review of current and future employment strategies and a comparative analysis of strategies and conditions among some European member states, including forecasts of occupational and qualification structures.

Theobald, R 1997, 'The future of work', a series of public lectures broadcast by Radio National, Australian Broadcasting Corporation, published at http://www.abc.net.au/rn/sspecial/work/

'The world has moved out of the industrial era into a new set of social, political and economic realities for which we are ill-prepared. There is a growing interest in the issues of work, jobs, resources, purpose and prestige - and the developing understanding that we need profoundly new patterns of thinking in this area. I want to make people aware that they must start to live the questions rather than the answers, and that the language in which we talk must be personal and not technical. These lectures aim to encourage tough-minded dialogue between people who emerge from very different styles of thinking. My goal for 40 years has been to wake people up to the need for a fundamental change in the economic and technological directions that have dominated the industrial era and the second half of the twentieth century'. Robert Theobald

VandenHeuvel, A & Wooden, M 1999, *Casualisation and outsourcing: Trends and implications for work-related training*, NCVER, Adelaide

The use of both casual employment and outsourced labour have been increasing in recent years, giving rise to important questions concerning access to, and participation in, structured training. This study seeks to fill a perceived gap in the literature on this subject by first describing current and past levels of casualisation and outsourcing within the Australian workforce, and then making use of existing data sets to identify how casualisation and outsourcing are related to training.

Waterhouse, P, Wilson, B & Ewer, P 1999, *Changing nature and patterns of work and implications for VET*, NCVER, Adelaide

This review of research offers an overview of recent literature on changes in the nature and patterns of work and their implications for vocational education and training (VET). The review, in looking at these changing patterns, examines the structure of the labour force and of working life, knowledge as a new form of 'capital', workplace change, and trends in working life cultures and organisational

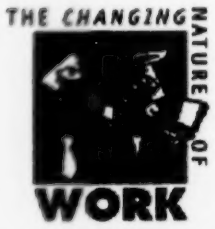
learning. Literature on training arrangements, policies and processes is discussed, followed by changes in educational practice. There is a section on analysis and commentary and, finally, findings and directions for future research are given.

Waterhouse, P & Sefton, R, 1997, 'Teachers at work: Utilising professional teaching skills in industry settings', in *Australian Journal of Education*, vol.41, (3), November, pp.262–275

As more teachers move into new areas such as enterprise-based workplace education, concerns have been expressed regarding the deprofessionalisation of their work. This article explores an approach to workplace education, within a manufacturing environment, which not only re-defines the work of teachers but also values the role of professional educators in advising industry personnel on matters relating to learning and assisting in the development of learning frameworks.

Wooden, M 1999, 'Job insecurity and job instability: Getting the facts straight, in *BCA Papers*, vol.1 no.1, May, pp14–18

The nature of the workforce is changing rapidly, with increased casual employment, contractors and various forms of fixed term employment. The facts do not bear out the belief that these changes have been accompanied by a rise in job insecurity. The latter, it turns out, is closely related to the level of unemployment. As unemployment falls, people become more secure about their work.



Current Research Project

'The Changing Nature of Work and the Emergence of the Knowledge-based economy: The Implications for Vocational Education and Training of the Demands of the Emerging Knowledge-based Economy'

The Centre for Regional Research and Innovation (CRRI) within the University of Western Sydney and The Centre for Research and Learning in Regional Australia (CRLRA) within the University of Tasmania are conducting research on this topic for the NSW Board of Vocational Education and Training.

This is an ongoing project that commenced in February 2000 and will be completed in three stages by July 2001. The Stage 1 interim report has recently been completed (October 2000). Stage 1 of the project has aimed to identify the forms of knowledge required in the emerging knowledge-based economy and the impact this is having on the nature of work. Stage 1 was specifically designed to address the first research question:

> *What is the extent and speed of changes in the type and level of knowledge and skill required in a range of industry sectors, occupational areas and organisational sizes?*

CRRI's research focus is organised into three areas: economic development, development of learning regions and innovation, and technology diffusion. The centre has a particular interest in urban fringe regions.

If you would like more information about this research project or about CRRI, please contact:

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